

LISTING OF CLAIMS:

This listing of claims will replace all prior versions, and listing, of claims in the application.

1. (Presently Amended) A charged particle beam system including a main chamber, an exchange chamber and a substrate handling device mounted inside the main chamber for loading and unloading a substrate into and out of the main chamber, the device comprising a bar having a longitudinal axis and a side member extending laterally from the bar for supporting the substrate to one side of the bar, the bar mounted for movement along the longitudinal axis between at least a first position, in which the side member is located within the exchange chamber and a second position, in which the side member is located outside the exchange chamber, and means for translating the bar along its longitudinal axis and configured such that the side member is moveable into and out of the exchange chamber.
2. (Presently Amended) A system according to claim 1, wherein the device further comprises wherein the means for translating the bar, the translating means including a rail protruding from the bar.
3. (Original) A system according to claim 2, wherein the rail runs along the bar.
4. (Presently Amended) A system according to claim 2-~~or 3~~, wherein the means for translating the bar further includes a set of linear bearings for holding the rail.

5. (Presently Amended) A system according to ~~any preceding claim~~claim 1, wherein the bar is cogged to provide a rack.
6. (Presently Amended) A system according to claim 5, wherein the device further comprises means for translating the bar, wherein the means for translating the bar further includes a pinion arranged to engage the rack.
7. (Presently Amended) A system according to claim 6, wherein the pinion is directly coupled to a motor.
8. (Presently Amended) A system according to ~~any preceding claim~~claim 1, wherein the device further comprises means for supporting the bar.
9. (Presently Amended) A system according to claim 8, wherein the device further comprises means for translating the bar, the means for translating the bar including a rail protruding from the bar and wherein the means for supporting the bar includes a set of linear bearings for holding the rail.
10. (Presently Amended) A system according to claim 8 ~~or 9~~, wherein the bar is cogged to provide a rack and the means for supporting the bar includes a pinion arranged to engage the rack.

11. (Presently Amended) A system according to any preceding claim~~claim~~ 1, wherein the bar has a transverse axis, the device further comprising means for translating the bar along ~~at~~ the transverse axis.
12. (Presently Amended) A system according to claim 11, wherein ~~said~~ the means for translating the bar along ~~at~~ the transverse axis comprises means for raising and lowering ~~said~~ ~~said~~ the bar.
13. (Presently Amended) A system according to any preceding claim~~claim~~ 1, wherein the side member is in the form of a cantilevered wing.
14. (Presently Amended) A system according to any preceding claim~~claim~~ 1, wherein the main chamber has an inside wall and the device is mounted to ~~an~~ the inside wall, of a chamber.
15. (Presently Amended) A system according to any preceding claim~~claim~~ 1, wherein the main chamber has a wall having an aperture and the device is configured to project the bar and the side member project through ~~the~~ an aperture in ~~the~~ a wall of the main chamber.
16. (Presently Amended) A system according to any preceding claim~~claim~~ 1, wherein the bar is substantially horizontal.

17. (Presently Amended) A system according to ~~any preceding claim~~claim 1, further comprising ~~configured to cooperate with~~ a cassette having a plurality of shelves.

18. (Presently Amended) A system according to ~~any preceding claim~~claim 1, further comprising ~~configured to cooperate with~~ a cassette having at least one shelf, ~~the~~ said shelf having a ledge around a space, ~~said device configured to permit said~~ the side member to ~~pass~~ ~~movable~~ through ~~the~~ said space when ~~the~~ said side member is raised or lowered so as to permit ~~the~~ a substrate to be deposited on or picked up from ~~the~~ said shelf.

19. (Presently Amended) A system according to ~~any preceding claim~~claim 1, wherein the device further comprises ~~wherein said substrate is supported by~~ a substrate support, ~~the~~ and said side member is ~~configured to support~~ the said substrate support.

20. (Presently Amended) A system according to ~~any one of claims 1 to 19~~claim 1, wherein ~~the~~ said substrate is a workpiece.

21. (Presently Amended) A system according to ~~any one of claims 1 to 20~~claim 1, wherein ~~said~~ the substrate is a wafer.

22. (Presently Amended) A system according to ~~any one of claims 1 to 20~~claim 1, wherein ~~said~~ the substrate is a wafer chip.

23. (Presently Amended) A system according to claim 21-~~or 22~~, wherein ~~said~~the substrate includes at least one layer overlying a base.

24. (Presently Amended) A system according to claim 23, wherein ~~said~~the substrate that includes at least two layers, a first layer overlying a base and a second layer overlying the first layer.

25. (Presently Amended) A system according to claim 23-~~or 24~~, wherein ~~said~~the one layer is an epitaxial layer.

26. (Presently Amended) A system according to claim 21-~~or 22~~, wherein ~~said~~the substrate is patterned.

27. (Presently Amended) A system according to any one of claims 1 to 20~~claim 1~~, wherein ~~said~~the substrate is a mask blank.

28. (Presently Amended) A system according to any preceding claim~~claim 1~~, wherein a surface of ~~said~~the substrate is coated with a resist layer.

29. (Presently Amended) A system according to any one of claims 1 to 20~~claim 1~~, wherein ~~said~~the substrate is a specimen.

30. (Presently Amended) A system according to ~~any preceding claim~~claim 1, further comprising a cassette for holding a plurality of wafers, the side member engageable with at least one of the plurality of wafers.

31. (Presently Amended) A system according to claim 30, wherein ~~said~~the cassette comprises a plurality of shelves.

32. (Presently Amended) A system according to claim 31, wherein each shelf includes ~~is configured to provide a ledge defining a plane and~~ around a space through which the side member can pass when being raised or lowered through the plane of the shelf.

33. (Presently Amended) A system according to claim 31 or 32, wherein a portion of an inner periphery of each shelf has a complementary shape to a portion of an outer periphery of ~~said~~the side member.

34. (Presently Amended) A system according to ~~any preceding claim~~claim 30, further comprising wafer supports, wherein the wafers are supported by respective wafer supports.

35. (Presently Amended) A system according to ~~any preceding claim~~claim 1, wherein in a third~~first~~ position, the device is contained within the main chamber.

36. (Presently Amended) A system according to any preceding claim claim 1, further comprising means for evacuating ~~said~~the main chamber.

37. (Presently Amended) A system according to any preceding claim claim 1, further comprising means for controlling an environment within ~~said~~the main chamber.

38. (Original) A substrate handling device for a charged particle beam system, the device comprising a bar and a side member extending laterally from the bar for supporting a substrate to one side of the bar and means for slidably moving the bar along its longitudinal axis.

39. (Original) A substrate handling device for a charged particle beam system, the device comprising a bar and a side member extending laterally from the bar for supporting a substrate to one side of the bar, the bar being configured to translate along its longitudinal axis.

40. (Presently Amended) A method of handling a substrate in a charged particle beam system using a device comprising a bar having a longitudinal axis and a side member extending laterally from the bar for supporting ~~a~~the substrate to one side of the bar ~~and means for translating the bar along its longitudinal axis~~, the method comprising:
translating the bar along the~~its~~ longitudinal axis.

41. (Presently Amended) A method according to claim 40, further comprising:
raising ~~said~~the bar so as to cause a substrate to be picked up.

42. (Presently Amended) A method according to claim 40 or 44, further comprising:

lowering ~~said~~the bar so as to cause ~~the~~a substrate to be placed down.

43. (Presently Amended) A substrate handling device for a charged particle beam

system, for use with a substrate, the device comprising:

a bar having a longitudinal axis and a side member extending laterally from the bar
for supporting ~~the~~a substrate to one side of the bar; and

means for translating the bar along the~~its~~ longitudinal axis.